REMARKS

New claim 62 has been added. Claims 1-51 have been cancelled. New claim 62 is based on page 2 lines 25-29, page 3 lines 13-23, page 6 lines 11-13, page 7 lines 19-21, page 9 lines 30 to page 10 line 10. No new matter has been added by way of amendment.

Claim 51 was rejected under 35 U.S.C. §102(e) as anticipated by Pollack et al. (US 6,351,593). With regard to newly filed claim 62, it is respectfully submitted that this rejection does not stand since Pollack et al. fails to disclose most of the features of claim 62. In particular, Pollack et al. describes a light path wherein part of the optical fiber is included in a ferrule 25 provided by each of the cable terminators 20 and 40 (col.3 lines 39-47).

New claim 62 has been introduced to focus on the technical features of the light path according to the present invention, emphasizing its simplicity and reduced bulk while, nevertheless, being capable of withstanding severe conditions such as those encountered during measurements in geological wells wherein pressure and temperature are significantly greater to other applications and mediums and particularly corrosive and abrasive. These particular features clearly distinguish the light path of the invention from the cited references.

As emphasized in new claim 62 and stated in the specification, the light path of the invention eliminates such a ferrule around the optical fiber by providing this fiber with a metal coating instead. It should be understood that there is a clear technical difference between the words "ferrule" and "coating." As generally admitted and described accordingly in Pollack et al., a ferrule is an external piece of metal which is mounted on an optical fiber through a ferrule seat and connector stem (see Pollack, col.3 line 62 to col.4 lines 5). When provided with this ferrule, which incorporates mounting means, the bulk of the optical fiber is significantly increased in this ferrule region. The optical fiber, when having the ferrule, should therefore be regarded as a modified and bigger device as compared to when the optical fiber was free of any external parts.

In order to reduce the bulk of prior art light paths, the light path of the invention precisely aims at providing means that are of significantly smaller size. Accordingly, in the light path of the invention, the optical fiber is not inserted in all the pieces needed to place a ferrule but is rather simply coated with metal. As generally understood and defined, the term "coating" means in this case that a metal layer has been settled on the surface of the optical fiber. Therefore, the overall size of the "metal coated fiber" is almost identical to the one of the non-coated fiber. Actually, in the region where the coating lies, the total diameter of the optical fiber differs only

by several microns with the optical fiber initial diameter. One skilled in the art would read the term "coating" in this sense and would understand that it means "a thin layer of."

Due to this technical feature, the size of the light path of the invention is significantly different from prior art light paths and allows several fibers to path in the same place. It is also a significantly simpler design than the optical fiber + ferrule seat + connector stem + ferrule as proposed by the prior art.

Applicants' specification clearly stresses these differences and advantages. See page 2 lines 35 to page 3 line 4:

"Furthermore, since the fiber can be extended and since the metal ferrule surrounding each fiber is omitted, it is possible to pass a plurality of fibers without excessively increasing the dimensions of the feedthrough, thus making it possible to connect one fiber to a light emitter and another fiber to a light receiver: this eliminates the need to use a Y-coupler."

See also page 6 lines 9-19:

"The light path comprises a pair of optical fibers 5 that are metal-coated and thus made chemically insensitive. It is therefore no longer necessary in the light path of the invention to strip these fibers in order to insert them in a metal ferrule and then through a gasket at the boundary between the zones A and B as used to be the case in prior art feedthroughs. Thus, with considerably reduced bulk, it is possible to pass a plurality of fibers through a common gasket 10"

New claim 62 also distinguishes the light path of the invention over the prior art by clarifying technical characteristics of the protective sheath, which is capable of maintaining the respective pressure inside the protective sheath substantially equal to the pressure inside the second zone situated inside a well passing though geological formations.

Pollack et al. describes (col.8 lines 22-30) a mounting procedure for the connector stem that uses a crimping tool of the type of a Daniels tool (fig.10 & 11). As stated in Pollack et al. this tool is preferred since it applies uniform radial pressure to the fiber optic cable and "*the application of uniform and equal pressure is important because unequal pressures applied during crimping may stress the fiber, causing microbends or possibly fractures of the fiber.*" This disclosure does not anticipate the characteristics of newly claim 62 since, as stated in Pollack et al., it is the radial pressure to the fiber that is kept radially uniform, which means that in order to avoid microbends, the pressures applied on each different point over the circumference of the optic cable are identical. This is done thanks to the Daniels tool 150 that contains crimping members 153 which are disposed radially relative to a die 151. Therefore, "*when the handles 152 are urged together, the crimping members 153 are urged uniformly and radially toward the center of the die 151" (col. 10. lines 42-44)*". What is equal in this case is not the pressure inside

and outside protection of the optic fiber but each pressure point around the diameter of the optic fiber.

In contrast, as stated in new claim 62, the protective sheath of the invention is such that it is possible to have equal pressure inside and outside the protective sheath. Therefore, the pressure all around the optic fiber is similar to the pressure in the outside environment of the protection of the fiber, i.e. the geological well. This feature, combined with the metal coating of the optical fibers, is particularly interesting since it avoids any complicated connecting device between the optical fiber and the connector of the optical sensor which lies in the geological well. See specification page 7 lines 19-35. These features are neither disclosed nor suggested in Pollack et al.

Finally, new claim 62 emphasizes the fact that the light path of the invention is dedicated to link two zones of very different characteristics in terms of temperature, pressure and nature since the first zone is inside the "clean" body of an optical tool whereas zone two is situated in the corrosive, high pressure, high temperature environment of a geological well. None of this is disclosed in Pollack et al.

Regarding the dependent claims, and the claim rejections under 35 U.S.C. §103(a), it is noted that since the main characteristics of new independent claim 62 are not disclosed or even suggested by Pollack et al., none of the dependent claims can possibly be anticipated or obvious in view of Pollack et al. or the other cited references.

Applicants believe that these amendments address all outstanding matters and raise no new-matter issues. Favorable reconsideration on the basis of these amendments and remarks is respectfully requested. In the event that the Examiner intends to maintain any rejection, it is requested that these amendments be entered in order to place the application in better state for appeal. If the Examiner believes that a telephone conference would be advantageous in advancing the prosecution of this application, he is invited to call to the undersigned at (281) 285-4562. Please apply any charges not covered, or any credits, to Deposit Account 50 2183 (Reference Number 17.0247).

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